

2 Speed Wood Shaper (Model 43-355)



PART NO. 432-09-651-0004 (01/11/02)
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visit our website at: www.deltamachinery.com.

For Parts, Service, Warranty or other Assistance,

please call 1-800-223-7278 (In Canada call 1-800-463-3582).

GENERAL SAFETY RULES

Woodworking can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result. Safety equipment such as guards, push sticks, hold-downs, featherboards, goggles, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. Always use common sense and exercise caution in the workshop. If a procedure feels dangerous, don't try it. Figure out an alternative procedure that feels safer. **REMEMBER:** Your personal safety is your responsibility.

This machine was designed for certain applications only. Delta Machinery strongly recommends that this machine not be modified and/or used for any application other than that for which it was designed. If you have any questions relative to a particular application, **DO NOT** use the machine until you have first contacted Delta to determine if it can or should be performed on the product.

Technical Service Manager

Delta Machinery

4825 Highway 45 North

Jackson, TN 38305

(IN CANADA: 505 SOUTHGATE DRIVE, GUELPH, ONTARIO N1H 6M7)



WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE TOOL.** Learn the tool's application and limitations as well as the specific hazards peculiar to it.

2. **KEEP GUARDS IN PLACE** and in working order.

3. **ALWAYS WEAR EYE PROTECTION.** Wear safety glasses. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses. Also use face or dust mask if cutting operation is dusty. These safety glasses must conform to ANSI Z87.1 requirements. **NOTE:** Approved glasses have Z87 printed or stamped on them.

4. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning it "on".

5. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.

6. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well-lighted.

7. **KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.

8. **MAKE WORKSHOP CHILDPROOF** – with padlocks, master switches, or by removing starter keys.

9. **DON'T FORCE TOOL.** It will do the job better and be safer at the rate for which it was designed.

10. **USE RIGHT TOOL.** Don't force tool or attachment to do a job for which it was not designed.

11. **WEAR PROPER APPAREL.** No loose clothing, gloves, neckties, rings, bracelets, or other jewelry to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.

12. **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.

13. **DON'T OVERREACH.** Keep proper footing and balance at all times.

14. **MAINTAIN TOOLS IN TOP CONDITION.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

15. **DISCONNECT TOOLS** before servicing and when changing accessories such as blades, bits, cutters, etc.

16. **USE RECOMMENDED ACCESSORIES.** The use of accessories and attachments not recommended by Delta may cause hazards or risk of injury to persons.

17. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in "OFF" position before plugging in power cord. In the event of a power failure, move switch to the "OFF" position.

18. **NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is accidentally contacted.

19. **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function – check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.


20. **DIRECTION OF FEED.** Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.

21. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Don't leave tool until it comes to a complete stop.

22. **STAY ALERT, WATCH WHAT YOU ARE DOING, AND USE COMMON SENSE WHEN OPERATING A POWER TOOL. DO NOT USE TOOL WHILE TIRED OR UNDER THE INFLUENCE OF DRUGS, ALCOHOL, OR MEDICATION.** A moment of inattention while operating power tools may result in serious personal injury.

23. **MAKE SURE TOOL IS DISCONNECTED FROM POWER SUPPLY** while motor is being mounted, connected or reconnected.

24. **THE DUST GENERATED** by certain woods and wood products can be injurious to your health. Always operate machinery in well ventilated areas and provide for proper dust removal. Use wood dust collection systems whenever possible.

25.  **WARNING: SOME DUST CREATED BY POWER SANDING, SAWING, GRINDING, DRILLING, AND OTHER CONSTRUCTION ACTIVITIES** contains chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- lead from lead-based paints,
 - crystalline silica from bricks and cement and other masonry products, and
 - arsenic and chromium from chemically-treated lumber.
- Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

SAVE THESE INSTRUCTIONS.

Refer to them often and use them to instruct others.

ADDITIONAL SAFETY RULES FOR WOOD SHAPERS



WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY.

1. **DO NOT OPERATE THIS MACHINE UNTIL** it is assembled and installed according to the instructions.
2. **OBTAIN ADVICE** from your supervisor, instructor, or another qualified person if you are not familiar with the operation of this machine.
3. **FOLLOW ALL WIRING CODES** and recommended electrical connections.
4. **USE THE GUARDS WHENEVER POSSIBLE.** Check to see that they are in place, secured, and working correctly.
5. **NEVER TURN THE MACHINE "ON"** before clearing the table of all objects (tools, scraps of wood, etc.).
6. **AVOID AWKWARD OPERATIONS AND HAND POSITIONS** where a sudden slip could cause a hand to move into the cutter.
7. **KEEP ARMS, HANDS AND FINGERS** away from the cutter.
8. **NEVER START THE MACHINE** with the workpiece contacting the cutter.
9. **NEVER REACH UNDER THE TABLE** while the machine is running.
10. **KEEP CUTTERS SHARP** and free from rust and pitch.
11. **NEVER ADJUST THE FENCE** while the machine is running.
12. **ADJUST THE FENCE HALVES** so that the cutter opening is never more than is required to clear the cutter.
13. **LOCK THE FENCE** hardware after making fence adjustments.
14. **PROPERLY SECURE THE CUTTERS** before starting the machine.
15. **DO NOT PERFORM ANY OPERATION FREE-HAND.** Use the fence for straight-shaping, a miter gauge for end-shaping, and the starting pin and rub collars for curve-shaping.
16. **KEEP THE FRONT MOTOR ACCESS PANEL CLOSED** while the machine is running.
17. **DO NOT FEED A WORKPIECE** that is warped, contains knots, or is embedded with foreign objects (nails, staples, etc.).
18. **NEVER RUN A WORKPIECE** between the fence and the cutter.
19. **USE A MITER GAUGE** and a clamp attachment for end shaping a workpiece whenever possible. Remove the fence during this operation.
20. **PROVIDE SUFFICIENT BEARING SURFACE** when shaping with a starting pin and collar(s) Figs. B and C.

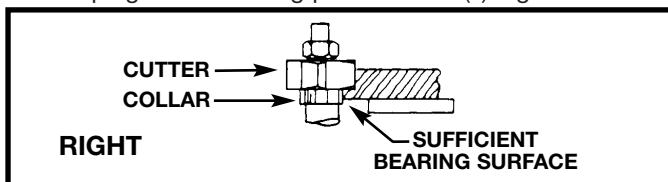


Fig. B

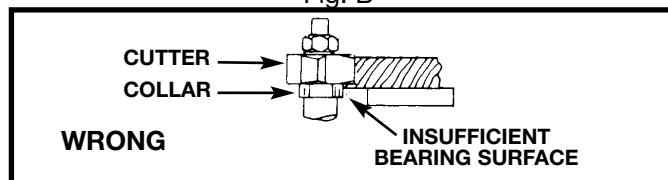


Fig. C

21. **ONLY SHAPE LARGE WORKPIECES** when using starting pin and collar(s). **DO NOT SHAPE** short or light workpieces when using starting pin and collar(s). (Figs. D and E).

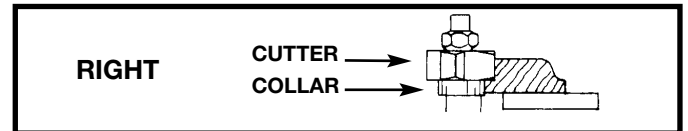


Fig. D

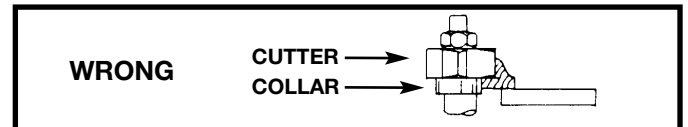


Fig. E

22. **POSITION THE CUTTER** below the collar(s) when shaping with starting pin and collar(s) (Fig. F).

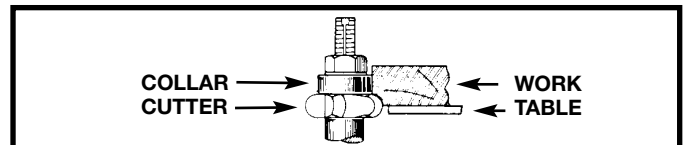


Fig. F

23. **FEED WORKPIECE** against cutter rotation (Fig. G).

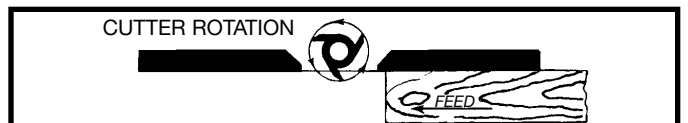


Fig. G

24. **NEVER PERFORM LAYOUT**, assembly or set-up work on the table/work area when the machine is running.
25. **TURN THE MACHINE "OFF" AND DISCONNECT THE MACHINE** from the power source before installing or removing accessories, before adjusting or changing set-ups, or when making repairs.
26. **TURN THE MACHINE "OFF"**, disconnect the machine from the power source, and clean the table/work area before leaving the machine. **LOCK THE SWITCH IN THE "OFF" POSITION** to prevent unauthorized use.
27. **ADDITIONAL INFORMATION** regarding the safe and proper operation of this machine is available from the Power Tool Institute, 1300 Summer Avenue, Cleveland, OH 44115-2851. Information is also available from the National Safety Council, 1121 Spring Lake Drive, Itasca, IL 60143-3201. Please refer to the American National Standards Institute ANSI O1.1 Safety Requirements for Woodworking Machines and the U.S. Department of Labor OSHA 1910.213 Regulations.

SAVE THESE INSTRUCTIONS.

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and use them to instruct others.**

POWER CONNECTIONS

A separate electrical circuit should be used for your machines. This circuit should not be less than #12 wire and should be protected with a 20 Amp time lag fuse. If an extension cord is used, use only 3-wire extension cords which have 3-prong grounding type plugs and matching receptacle which will accept the machine's plug. Before connecting the motor to the power line, make sure the switch is in the "OFF" position and be sure that the electric current is of the same characteristics as indicated on the machine. All line connections should make good contact. Running on low voltage will damage the motor.

 **WARNING: DO NOT EXPOSE THE MACHINE TO RAIN OR OPERATE THE MACHINE IN DAMP LOCATIONS.**

MOTOR SPECIFICATIONS

Your machine is wired for 120 volt, 60 HZ alternating current. Before connecting the machine to the power source, make sure the switch is in the "OFF" position.

GROUNDING INSTRUCTIONS

 **WARNING: THIS MACHINE MUST BE GROUNDED WHILE IN USE TO PROTECT THE OPERATOR FROM ELECTRIC SHOCK.**

1. All grounded, cord-connected machines:

In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This machine is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided - if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the machine is properly grounded.


Use only 3-wire extension cords that have 3-prong grounding type plugs and matching 3-conductor receptacles that accept the machine's plug, as shown in Fig. A.

Repair or replace damaged or worn cord immediately.

2. Grounded, cord-connected machines intended for use on a supply circuit having a nominal rating less than 150 volts:

If the machine is intended for use on a circuit that has an outlet that looks like the one illustrated in Fig. A, the machine will have a grounding plug that looks like the plug illustrated in Fig. A. A temporary adapter, which looks like the adapter illustrated in Fig. B, may be used to connect this plug to a matching 2-conductor receptacle as shown in Fig. B if a properly grounded outlet is not available. The temporary adapter should be used only until a properly grounded outlet can be installed by a qualified electrician. The green-colored rigid ear, lug, and the like, extending from the adapter must be connected to a permanent ground such as a properly grounded outlet box. Whenever the adapter is used, it must be held in place with a metal screw.

NOTE: In Canada, the use of a temporary adapter is not permitted by the Canadian Electric Code.

 **WARNING: IN ALL CASES, MAKE CERTAIN THE RECEPTACLE IN QUESTION IS PROPERLY GROUNDED. IF YOU ARE NOT SURE HAVE A QUALIFIED ELECTRICIAN CHECK THE RECEPTACLE.**

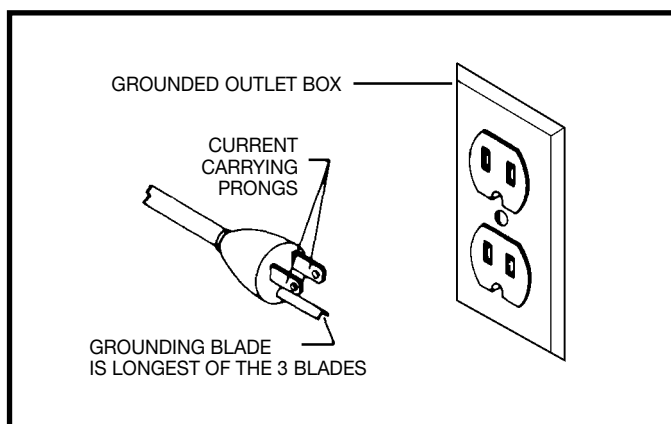


Fig. A

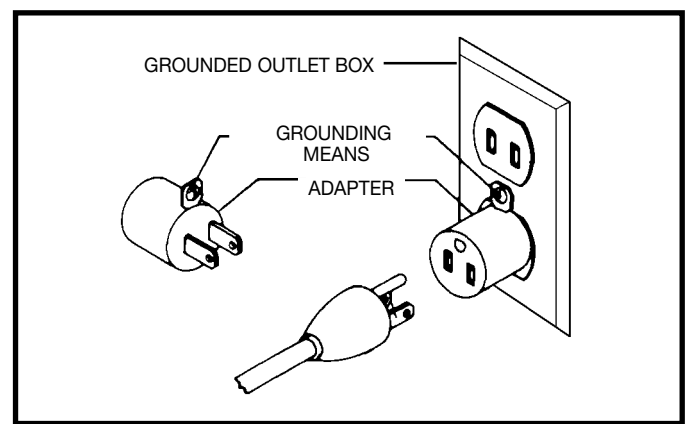


Fig. B

3. Grounded, cord-connected machines intended for use on a supply circuit having a nominal rating between 150 - 250 volts, inclusive:

If the machine is intended for use on a circuit that has an outlet that looks like the one illustrated in Fig. C, the machine will have a grounding plug that looks like the plug illustrated in Fig. C. Make sure the machine is connected to an outlet having the same configuration as the plug. No adapter is available or should be used with this machine. If the machine must be re-connected for use on a different type of electric circuit, the re-connection should be made by qualified service personnel; and after re-connection, the machine should comply with all local codes and ordinances.

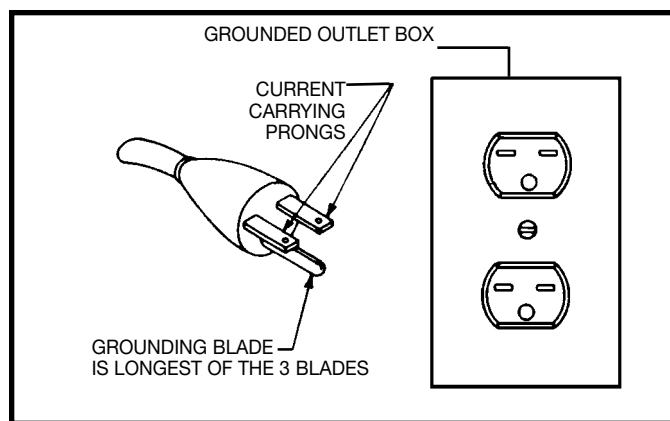


Fig. C

EXTENSION CORDS

Use proper extension cords. Make sure your extension cord is in good condition and is a 3-wire extension cord which has a 3-prong grounding type plug and matching receptacle which will accept the machine's plug. When using an extension cord, be sure to use one heavy enough to carry the current of the machine. An undersized cord will cause a drop in line voltage, resulting in loss of power and overheating. Fig. D, shows the correct gauge to use depending on the cord length. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

MINIMUM GAUGE EXTENSION CORD RECOMMENDED SIZES FOR USE WITH STATIONARY ELECTRIC MACHINES			
Ampere Rating	Volts	Total Length of Cord in Feet	Gauge of Extension Cord
0-6	115	up to 25	18 AWG
0-6	115	25-50	16 AWG
0-6	115	50-100	16 AWG
0-6	115	100-150	14 AWG
6-10	115	up to 25	18 AWG
6-10	115	25-50	16 AWG
6-10	115	50-100	14 AWG
6-10	115	100-150	12 AWG
10-12	115	up to 25	16 AWG
10-12	115	25-50	16 AWG
10-12	115	50-100	14 AWG
10-12	115	100-150	12 AWG
12-16	115	up to 25	14 AWG
12-16	115	25-50	12 AWG
12-16	115	GREATER THAN 50 FEET NOT RECOMMENDED	

Fig. D

MINIMUM GAUGE EXTENSION CORD RECOMMENDED SIZES FOR USE WITH STATIONARY ELECTRIC MACHINES			
Ampere Rating	Volts	Total Length of Cord in Feet	Gauge of Extension Cord
0-6	230	up to 50	18 AWG
0-6	230	50-100	16 AWG
0-6	230	100-200	16 AWG
0-6	230	200-300	14 AWG
6-10	230	up to 50	18 AWG
6-10	230	50-100	16 AWG
6-10	230	100-200	14 AWG
6-10	230	200-300	12 AWG
10-12	230	up to 50	16 AWG
10-12	230	50-100	16 AWG
10-12	230	100-200	14 AWG
10-12	230	200-300	12 AWG
12-16	230	up to 50	14 AWG
12-16	230	50-100	12 AWG
12-16	230	GREATER THAN 100 FEET NOT RECOMMENDED	

Fig. D

OPERATING INSTRUCTIONS

FOREWORD

Delta Model 43-355 is a wood shaper. The Delta Model 43-355 has an extra large 18"x30", rectangular cast iron table which provides ample work support. The Delta Model 43-355 is equipped with a patented fence which conforms to the cutter shape for improved chip removal, dust collection and greater operator protection.

UNPACKING AND CLEANING

Carefully unpack the machine and all loose items from the shipping container(s). Remove the protective coating from all unpainted surfaces. This coating may be removed with a soft cloth moistened with kerosene (do not use acetone, gasoline or lacquer thinner for this purpose). After cleaning, cover the unpainted surfaces with a good quality household floor paste wax.

ASSEMBLY INSTRUCTIONS

UNPACKING

The shaper is shipped with the motor assembly, spindle and belt assembled to the underside of the table.

Place the shaper table and motor assembly upside down on a suitable surface, such as two saw horses, making certain there is clearance for the spindle (A).

IMPORTANT: The spindle assembly is double-sided, with a 1/2 inch diameter spindle on one end and a 3/4 inch diameter spindle on the other end. The shaper is shipped with the 1/2 inch diameter spindle in the operating position. If you desire to use the 3/4 inch diameter spindle, refer to section "**CHANGING SPINDLES AND REPLACING BELTS.**"

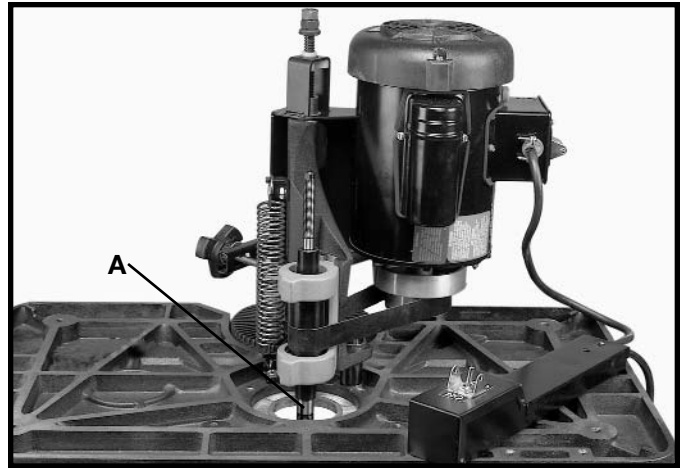


Fig. 2

ASSEMBLING STAND

1. Assemble the four legs (E) Fig. 3, to bottom of table. Align the hole in the bottom of the leg with the hole in the bottom of table. Place a 7/16" flat washer onto a 7/16-14x1" hex head screw (F) Fig. 3, insert the screw through the hole in the leg, and thread the screw into the hole in the bottom of the table. Repeat this process for the three remaining legs. **NOTE:** End of leg that has two square holes (G) and one round hole (H) is to be fastened to bottom of table, as shown. **Do not completely tighten hardware at this time.**

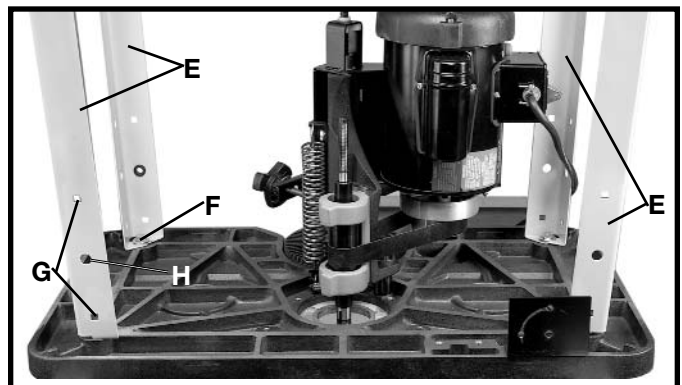


Fig. 3

2. Assemble back panel (T) and two side panels (U) to the inside of the four legs, as shown in Fig. 4. Align the holes in the back panel and the side panels, with the holes in the legs. Insert a 5/16-18x5/8" carriage head bolt through the hole in the leg and the hole in the panel. Place a 5/16" flat washer onto the carriage head bolt, place a 5/16" lock washer onto the carriage head bolt, thread a 5/16-18 hex nut onto the carriage head bolt and tighten securely. Repeat this process for the 11 remaining holes in the panels and legs. **NOTE: Firmly tighten all leg and panel mounting hardware.**

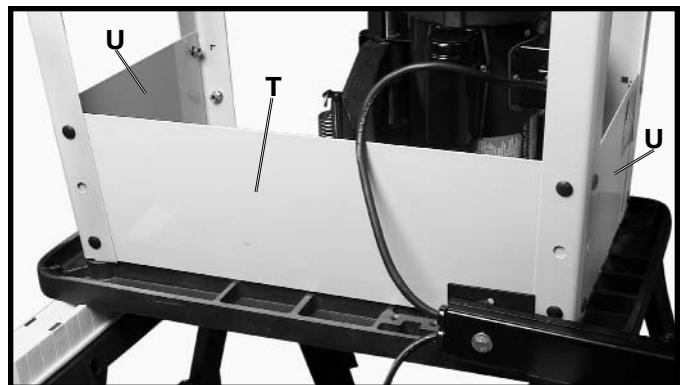


Fig. 4

3. Place the front panel so the label is facing you in the upright position. Assemble latch assembly to the right side of the front panel by inserting threaded end of stud (V) Fig. 5, through hole (W), place rubber bushing (X) on threaded stud, thread special nut (Y) onto stud.

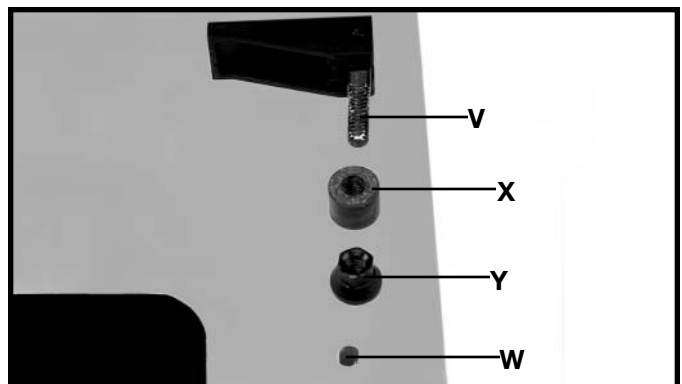


Fig. 5

4. Assemble 3/8" rubber grommet (Z) Fig. 6, to round hole (A) in leg.

5. Assemble front panel (B) Fig. 7, to the outside of the two front legs. Insert a 5/16-18x5/8" carriage head bolt (C) Figs. 6 and 7, through the hole in the front panel and the hole in rubber grommet (Z) Fig. 6. Place a 5/16" flat washer (D) Fig 6, on the carriage head bolt, and thread a 5/16-18 lock nut (E) Fig. 6, on the carriage head bolt and tighten the lock nut just enough, for the nut to start to compress the rubber grommet (Z).

6. Lift up latch (F) Fig. 7, insert stud on inside of latch into round hole in leg (G), and press down to lock latch (F).

NOTE: If the rubber bushing of the latch will not line up with the hole in the leg it will be necessary to loosen the one 7/16-14x1" hex head screw attaching the leg to the bottom of the table, and repositioning the leg so that the hole in the leg and the stud on the latch will line up.

NOTE: The special nut on the latch should be tightened to a point that it will compresses the bushing just enough so that the bushing will pass through the hole in the leg.

7. Assemble bottom shelf (G) Fig. 8 to the four legs (H) (one of which is shown). Align the eight holes in the legs with the eight holes in the shelf. Insert a 5/16-18x5/8" carriage head bolt through the hole in the leg and the hole in the shelf. Place a 5/16" flat washer onto the carriage head bolt, place a 5/16" lock washer onto the carriage head bolt, thread a 5/16-18 hex nut onto the carriage head bolt and tighten securely. Repeat this process for the seven remaining holes.

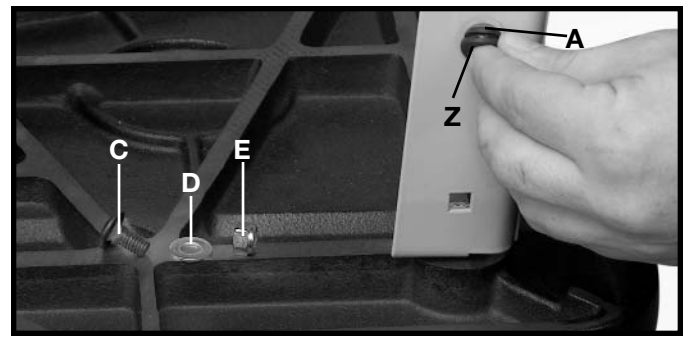


Fig. 6

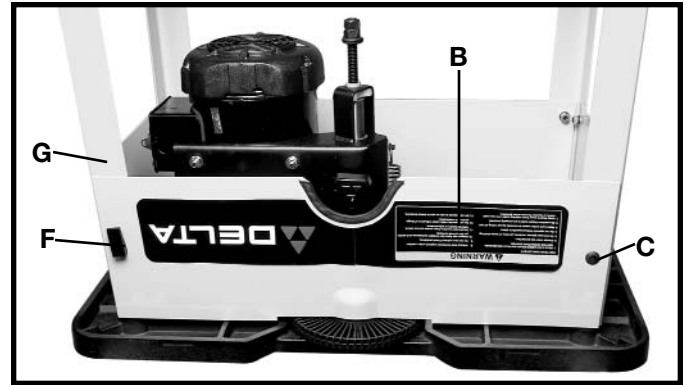


Fig. 7

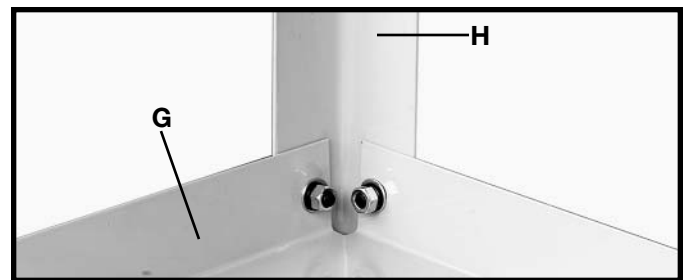


Fig. 8

ASSEMBLING SWITCH ARM

1. Place a 3/8" flat washer on a 5/16-18x1-3/4" hex head screw (C) Fig. 9, and insert screw (C) through hole in bottom of switch arm (D), as shown.

2. Fasten switch arm (D) Fig. 9, to bracket (A) by inserting screw (C) through hole (G) and fasten in place with a 5/16-18 hex nut. **NOTE:** Switch arm (D) will be mounted in the horizontal position, as shown in Fig. 10, and protrusion (E) Fig. 9, on switch arm will be in hole (F) Fig. 9, of switch plate. See section **CHANGING POSITION OF SWITCH ARM** for instructions on moving arm to the vertical position.

3. Turn shaper right side up.

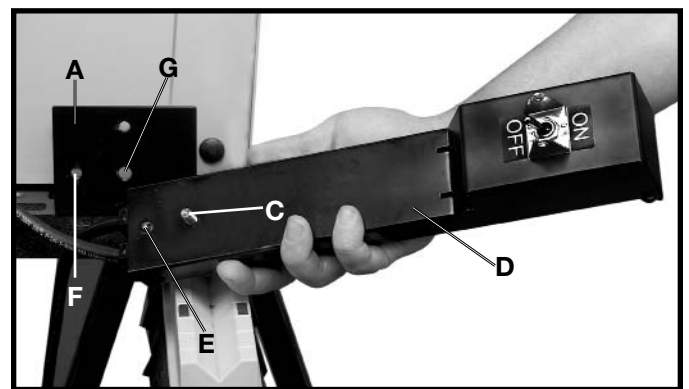


Fig. 9



Fig. 10

ASSEMBLING FENCE TO SHAPER TABLE

Place the fence assembly (A) Fig. 11, on the shaper table and fasten it to the table using the two long threaded locking rods (B) and 11/32" flat washers (C), as shown.

ASSEMBLING TABLE INSERTS

Two table inserts (A) Fig. 12, are provided for use with various size cutters. The largest insert is pressed into the spindle opening in the table and the smallest insert, when used, is pressed into the opening of the largest insert.

ASSEMBLING CUTTER AND SPINDLE GUARD

A 4-1/2" diameter shaper spindle guard (A) Fig. 13, is supplied with your machine and should always be used with shaper cutters up to 3-1/2" in diameter. The guard (A) is provided with a 1/2" bushing which enables it to be used with both the 1/2" and 3/4" spindle.

For larger cutters up to 4-1/2" in diameter an accessory 43-441, 6-1/2" diameter shaper spindle guard is available and should always be used.

To assemble the cutter and spindle guard, proceed as follows:

1. Two 1/2" ID. and two 3/4" I.D. washers are supplied with the spindle guard to accommodate the 1/2" or 3/4" spindle. The washers are to be placed directly above and below the spindle guard. Place one of the washers (B) Fig. 13, on the spindle, over either the cutter or collar, as shown.
2. Place the spindle guard (A) Fig. 13, on the spindle. Washer (C) is placed on the spindle directly Over the spindle guard (A).
3. **IMPORTANT:** Always place "keyed" washer (D) Figs. 13 and 14, on spindle before screwing on nut (E). The "keyed" washer (D), prevents the nut (E) from loosening when the spindle is turning counterclockwise. Screw on nut (E) as far as possible by hand.
4. With wrench (F) Fig. 15, on spindle nut, place wrench (G) on flats on top of spindle to hold spindle steady. Then tighten spindle nut with wrench (F).

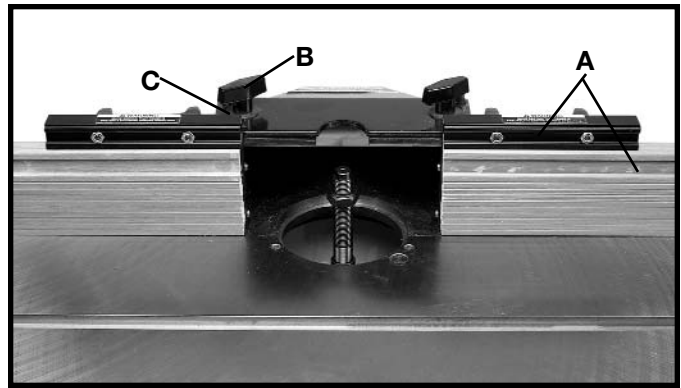


Fig. 11



Fig. 12

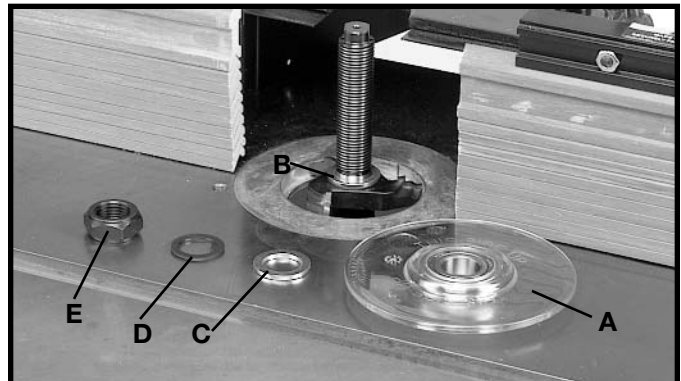


Fig. 13

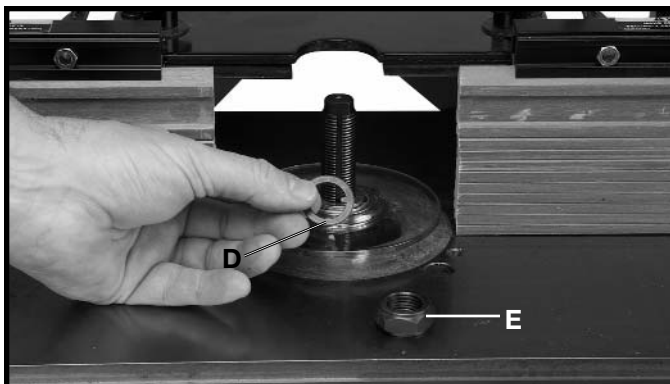


Fig. 14

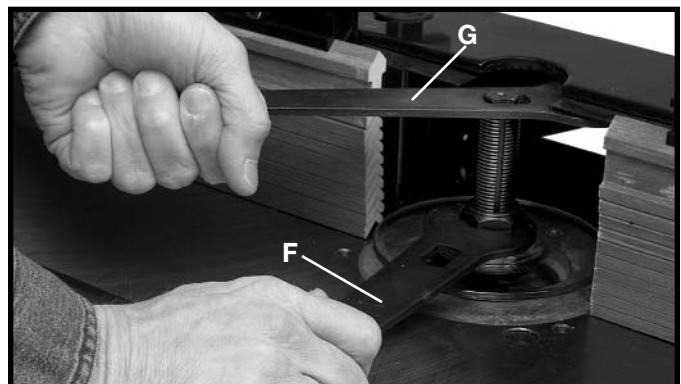


Fig. 15

FASTENING SHAPER TO SUPPORTING SURFACE

IF DURING OPERATION THERE IS ANY TENDENCY FOR THE SHAPER TO TIP OVER, SLIDE OR WALK ON THE SUPPORTING SURFACE, THE SHAPER MUST BE SECURED TO THE SUPPORTING SURFACE. HOLES (A) FIG. 16, ARE PROVIDED IN THE SHAPER LEGS FOR MOUNTING.

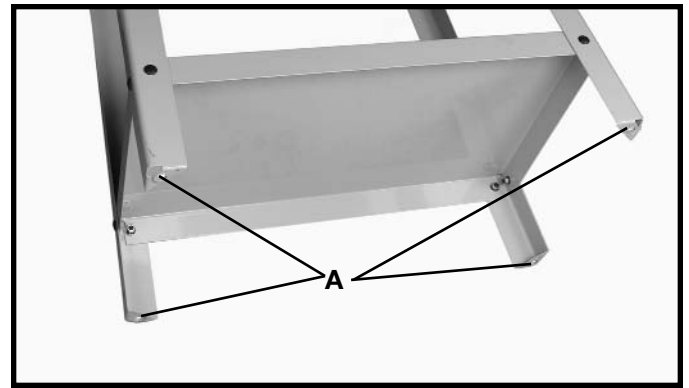


Fig. 16

OPERATING CONTROLS AND ADJUSTMENTS

RAISING AND LOWERING SPINDLE

The spindle can be raised or lowered by loosening lock knob (A) Fig. 18, and rotating handwheel (B). Rotating the handwheel clockwise will raise the spindle and rotating it counterclockwise will lower the spindle. **IMPORTANT:** Final height setting of the cutter should always be made by moving the spindle upward. Always tighten lock knob (A) after adjusting spindle height.

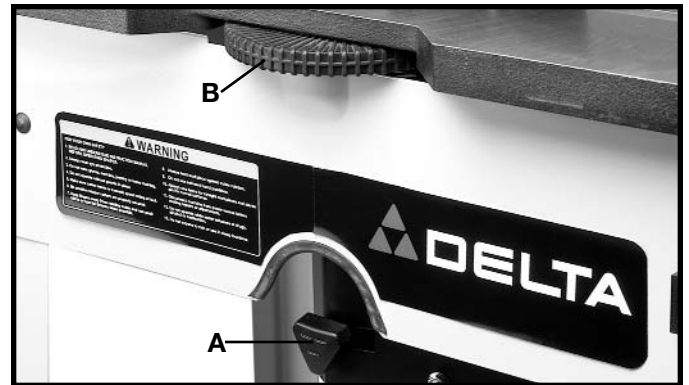


Fig. 18

START/STOP SWITCH

The start/stop switch (A) Fig. 19, is mounted on top of the switch arm for easy accessibility. To start the machine move the switch (A) to the up "ON" position and to stop the machine move the switch (A) to the down "OFF" position.

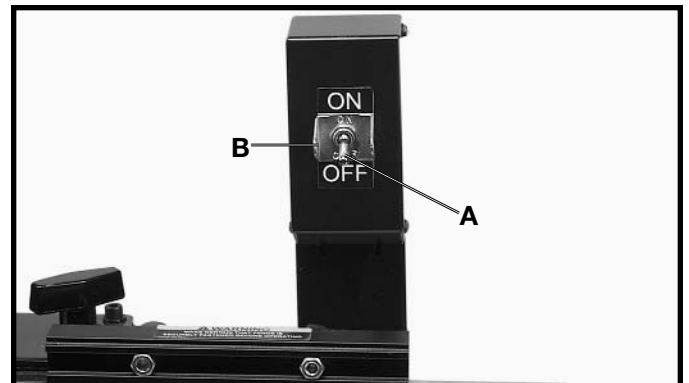


Fig. 19

LOCKING SWITCH IN THE "OFF" POSITION

IMPORTANT: When the tool is not in use, the switch should be locked in the OFF position using a padlock (A) Fig. 20, with a 3/16" diameter shackle to prevent unauthorized use.



Fig. 20

CHANGING POSITION OF THE SWITCH ARM

The switch arm (A) can be positioned in the vertical position, as shown in Fig. 21, or in the horizontal position, as shown in Fig. 22. This allows the switch to be placed in the most convenient position for the type of work you are performing. For example, when using the fence (B) as a guide when shaping, it is more convenient to have the switch arm in the vertical position, as shown in Fig. 21. When shaping with collars and starting pin (C) it is more practical to have the switch arm in the horizontal position, as shown in Fig. 22. This moves the switch below the table surface preventing any interference of the switch arm with the workpiece.

To change position of the switch arm, loosen screw (D) Fig. 23, and rotate arm (A) to the vertical or horizontal position. Then tighten screw (D).

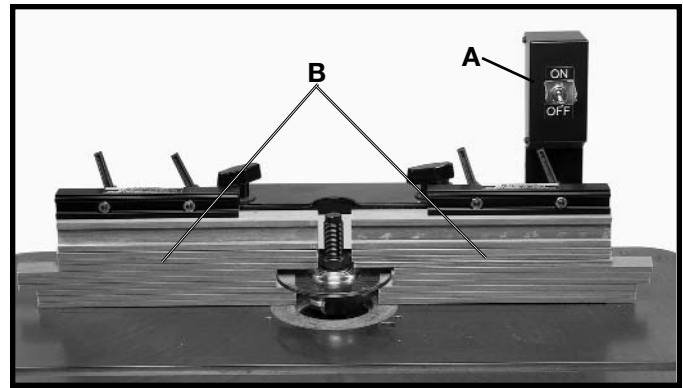


Fig. 21



Fig. 22

REVERSING SPINDLE ROTATION

The motor supplied with your shaper is equipped with a reversing switch (A) Fig. 24, located on the motor junction box. **CAUTION:** Never attempt to change the rotation of the spindle with the motor running. **NOTE:** If it is desired to operate the shaper spindle in only one rotation or to prevent any accidental changing of the spindle rotation, a padlock can be inserted through the holes in the switch bracket (B).

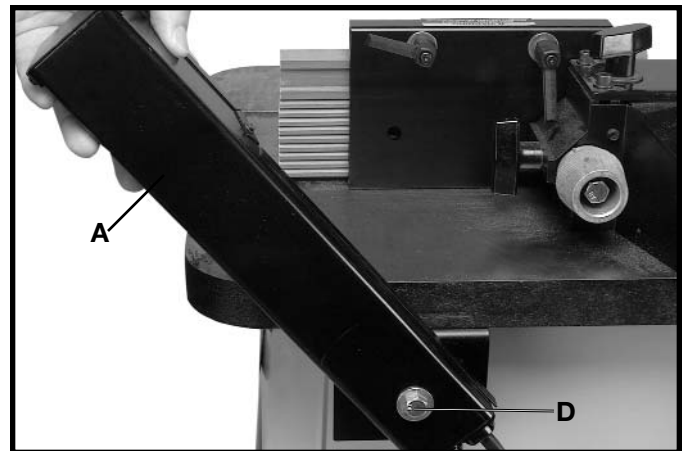


Fig. 23

OVERLOAD PROTECTION

The motor supplied with your shaper is equipped with a reset overload relay button (C) Fig. 24. If the motor shuts off or fails to start due to overloading (shaping stock too fast, using a dull cutter, using the shaper beyond its capacity, etc.) or low voltage, **TURN THE SWITCH TO THE "OFF" POSITION**, let the motor cool three to five minutes and push the reset button (C) which will reset the overload device. The motor can then be turned on again in the usual manner. **IMPORTANT:** If the motor continually shuts off due to overloading, the cause of overloading must be corrected. If this happens it is recommended you obtain advice from a qualified electrician.

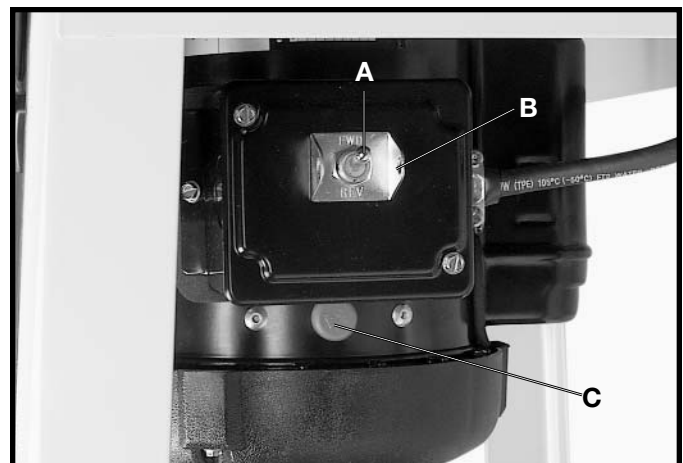


Fig. 24

FENCE ADJUSTMENTS

IMPORTANT: The individual fence segments (A) should be adjusted endwise so the opening is never more than required to clear the spindle guard (B) and cutter (C), as shown in Fig. 25. To adjust the fence segments (A) endwise, loosen lock handles (D), adjust each individual fence segment (A) and tighten lock handles (D). **NOTE:** Lock handles (D) are spring-loaded and can be repositioned by pulling out on the handle and repositioning the hub of the handle on the serrated nut located underneath the handle.

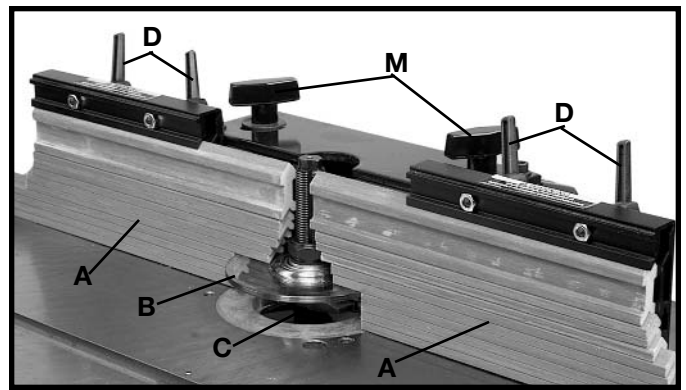


Fig. 25

The complete fence assembly can be positioned on the table in relationship to the cutter by loosening the two knobs (M) Fig. 25, moving the fence assembly to the desired position and tightening the two knobs (M). Each fence half (E) and (H) Fig. 26, can be moved independently in or out, depending on the type of shaping operation that is being performed. To move fence half (E) Fig. 26, in or out, loosen lock knob (F) and turn adjusting knob (G) until the correct setting of the fence (E) is obtained. Then tighten lock knob (F). Fence half (H) is moved in the same manner by loosening lock knob (J) and turning adjusting knob (K).

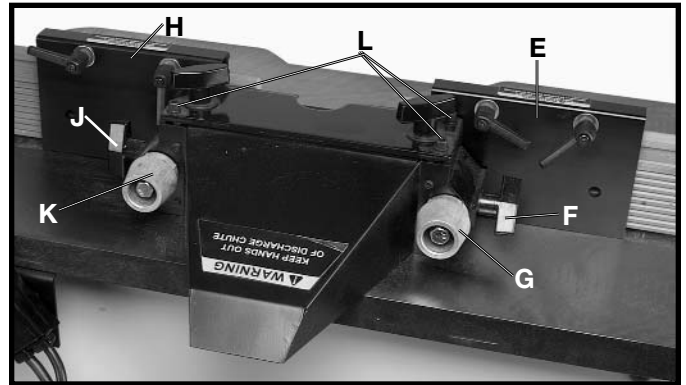


Fig. 26

In order to do accurate shaping, both fence halves (A) Fig. 25, must be parallel with each other. To check and adjust, move both fence halves (A) in or out until they are in line with each other. Using a straight edge check to see if both fence halves are parallel with each other the complete length of the fences. If an adjustment is necessary loosen four screws (three of which can be seen at (L) Fig. 26) and adjust the fences accordingly. Then tighten the four screws (L).

CHANGING SPEEDS AND ADJUSTING BELT TENSION

1. **DISCONNECT MACHINE FROM POWER SOURCE.**
2. Lower the front panel of the shaper.
3. The shaper is supplied with a 2-speed motor pulley (A) Fig. 27, that provides spindle speeds of 7,000 and 10,000 R.P.M. When the belt is on the smallest step of the motor pulley (A), as shown in Fig. 27, the spindle speed will be 7,000 R.P.M. When the belt is on the largest step of the motor pulley (A) the spindle speed will be 10,000 R.P.M.
4. To change speeds, loosen belt tension knob (B) Fig. 27, until the belt (C) can be moved to the desired step of the motor pulley (A). Slide other end of belt up or down on spindle sleeve so it is in alignment.
5. Adjust belt tension by tightening belt tension knob (B) Fig. 27. Proper tension is obtained when knob (B) ratchets (slips) while tightening.



Fig. 27

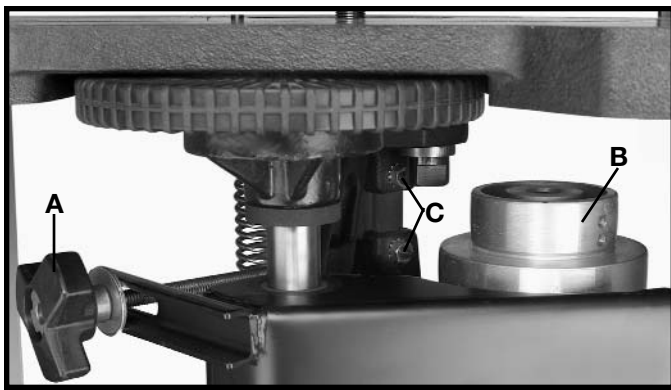


Fig. 28

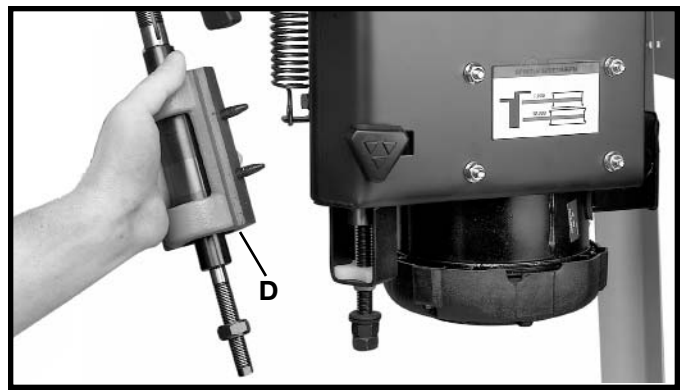


Fig. 29

CHANGING SPINDLES AND REPLACING BELTS

CHANGING SPINDLES

The spindle assembly in your shaper is equipped with a 1/2 inch diameter spindle on one end and 3/4 inch diameter spindle on the other end. To change from one diameter to the other, proceed as follows:

1. **DISCONNECT MACHINE FROM POWER SOURCE.**
2. Lower the front panel of the shaper.
3. Loosen belt tension knob (A) Fig. 28, and remove belt from motor pulley (B).
4. Remove two nuts (C) Fig. 28.
5. Remove spindle assembly (D) Fig. 29, and turn spindle assembly end for end.

REPLACING BELTS

6. Place belt (J) Fig. 30, around spindle shaft (K) and through opening (L) in elevating bracket, as shown. Assemble spindle assembly to elevating bracket by inserting two screws (M) into two holes (N) Fig. 31 and fasten in place using two one-piece nuts and star washers (O) Fig. 31.

7. Fig. 32, illustrates the spindle and belt assembled to the elevating bracket.

8. Place belt (J) Figs. 32 and 33, on one of the steps of the motor pulley (R). It may be necessary to loosen belt tension knob (S) Fig. 32, in order to allow the belt to fit around the motor pulley (R) Figs. 32 and 33. Align belt (J) on spindle shaft (K) with the motor pulley and tighten belt tension knob (S) Fig. 32.

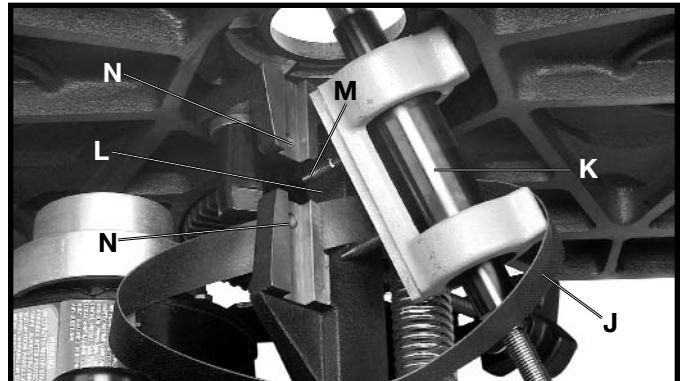


Fig. 30



Fig. 31

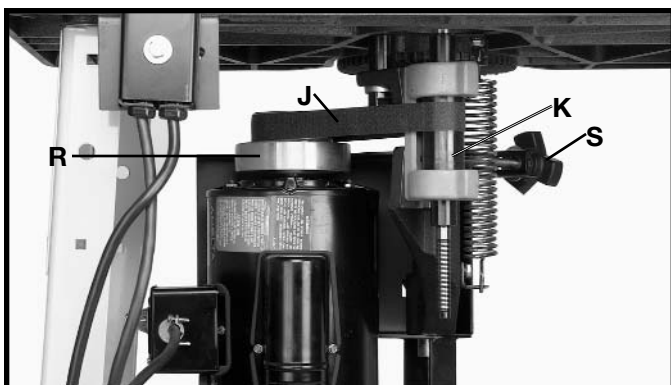


Fig. 32



Fig. 33

CHECKING AND ALIGNING MOTOR PULLEY TO SPINDLE

1. **DISCONNECT MACHINE FROM POWER SOURCE.**
2. Lift up latch (A) Fig. 34, pull out and lower front panel (B), as shown.
3. Loosen belt tension knob (C) Fig. 35
4. Place belt (D) Fig. 35, on largest step of motor pulley (E). Slide belt (D) up or down on spindle sleeve so belt is horizontal. Tighten belt tension knob (C) **ONLY** enough to hold belt in position. Make sure motor mounting nuts (F) are loose enough to shift motor. Rotate the smallest step of the motor pulley (E) by hand and check to see if the belt is tracking properly and rides true on the pulley. If the belt is not riding true on the motor pulley, tilt the motor and continue to rotate pulley (E). When you are certain the motor pulley is aligned properly with the spindle, tighten the four motor mounting nuts (F) and tighten belt tension knob (C) until it ratchets.
5. After the shaper is connected to the power source, jog the motor on and off to check if the belt is tracking properly. If it is not, loosen three of the four motor mounting nuts (F) Fig. 35, and tilt the motor until the belt is tracking properly. Then tighten the nuts.



Fig. 34

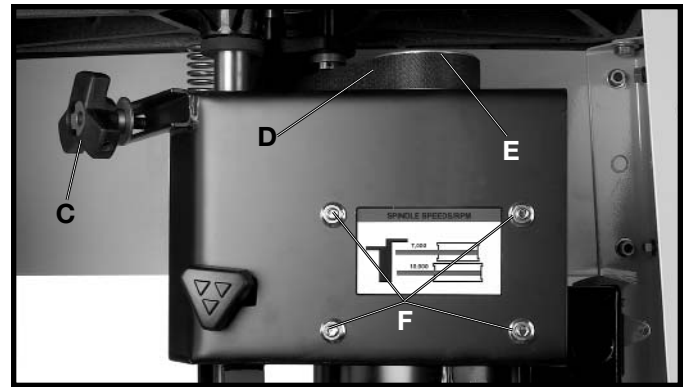


Fig. 35

OPERATION

The following is an example of the setting up and operational procedures when using the fence, collars and starting pin. Please review this information carefully before turning on the power to avoid damage to the machine or personal injury.

SHAPING WHEN USING THE FENCE AS A GUIDE

Using the fence is the safest and most satisfactory method of shaping, and this method should always be used when the work permits. Almost all straight work can be shaped using the fence as follows:

1. For average work, where a portion of the original edge of the work is not touched by the cutter, both the front and rear fences are in a straight line, as shown in Fig. 36.
2. When the shaping operation removes the entire edge of the work e.g., in jointing or making a full bead, the shaped edge will not be supported by the rear fence when both fences are in line, as shown in Fig. 37. In this case, the work should be advanced to the position shown in Fig. 37 and stopped.
3. The rear fence should then be advanced to contact the work, as shown in Fig. 38. The rear fence will then be in line with the cutting circle.

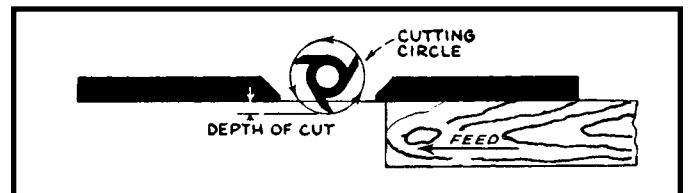


Fig. 36

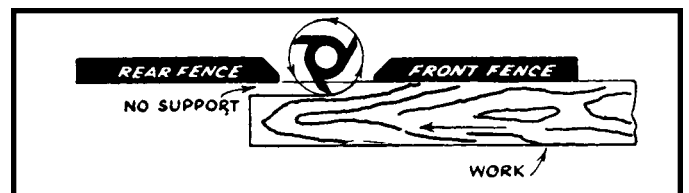


Fig. 37



Fig. 38

SHAPING WITH COLLARS AND STARTING PIN

When shaping with collars and starting pin, the following rules must always be followed for good work and safety in operation.

1. Collars **MUST** be smooth and free of all gum or other substances.
2. The edge of the work to be shaped **MUST** be smooth, as any irregularity in the surface which rides against the collar will be duplicated on the moulded surface.
3. A portion of the edge of the work **MUST** remain untouched by the cutters in order that the collar will have sufficient bearing surface. Fig. 39 illustrates the wrong way for the operation while Fig. 40 illustrates the right way.
4. The work **MUST** be fairly heavy in proportion to the cut being made as shown in Fig. 41. Under **NO** circumstances should short work of light body be shaped against the collars as shown in Fig. 42.
5. When shaping with collars and starting pin, the Safe Guard II spindle guard, supplied with your machine, should always be used.

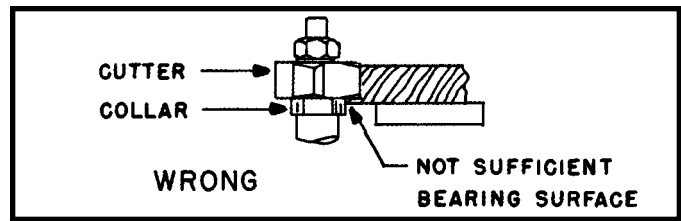


Fig. 39

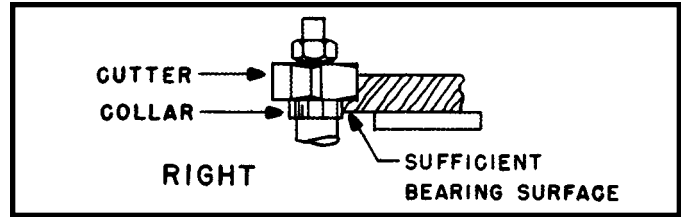


Fig. 40

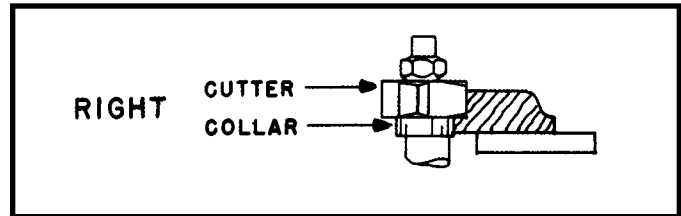


Fig. 41

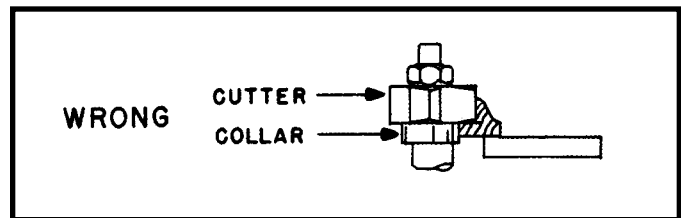


Fig. 42

POSITION OF COLLARS

1. The collars may be used in any of the following positions: above, below or between two cutters.
2. When the collar is used below the cutter, as shown in Fig. 43, the progress of the cut can be observed at all times. However, any accidental lifting of the work will gouge the wood and ruin the workpiece.
3. When the collar is used above the cutter as shown in Fig. 44, the cut cannot be seen, yet this method offers some advantage in that the cut is not affected by slight variations in the thickness of the stock. Also accidental lifting of the work will not gouge the workpiece. Simply correct the mistake by repeating the operation.
4. The collar between cutters method, as shown in Fig. 45, has both the advantages of the first two methods and is frequently used where both edges of the work are to be shaped.

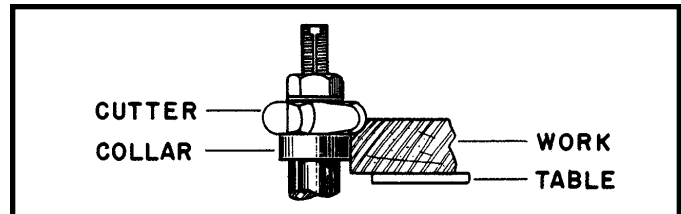


Fig. 43

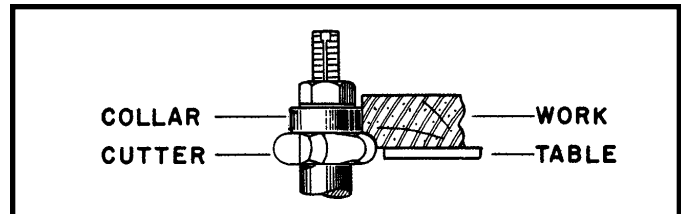


Fig. 44

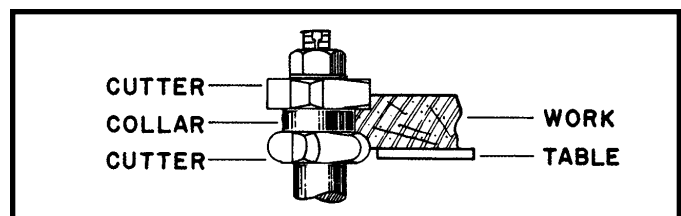


Fig. 45

STARTING PIN

1. Your machine is supplied with a tapered starting pin which is used as a support when starting the cut. The starting pin is placed in one of the two tapered holes in the table depending on the rotation of the cutter.

2. The work should be placed in the first position using the guide pin as a support, as shown in Fig. 46. Then swing the work into the cutter as shown in the second position. The work will now be supported by the collar and starting pin as shown in Fig. 46.

3. After the cut has been started, the work is swung free of the starting pin and rides only against the collar as shown in the third position Fig. 47. **ALWAYS FEED AGAINST THE ROTATION OF THE CUTTER.**

IMPORTANT: If the work would be advanced to the cutter without the side support of the starting pin, it would invariably be kicked back.

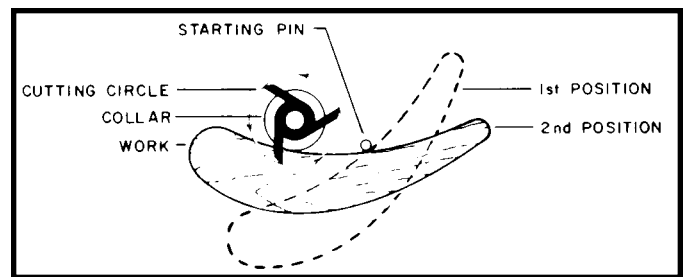


Fig. 46

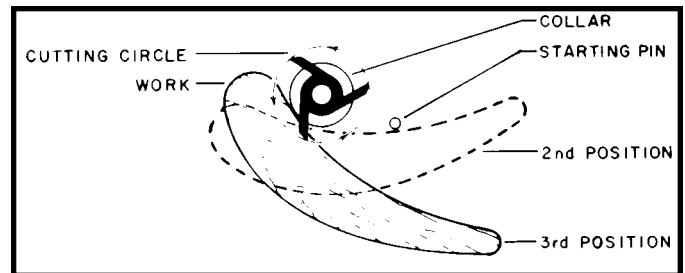



Fig. 47

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